

10/038,245 filed 10/24/2001

Parce, et al.

Reply to Office Action of September 15, 2004

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

75. (original) A device for joining a second laminar fluid layer to, or removing a second laminar fluid layer from, a first laminar fluid layer, said device comprising:
a first plate having a first surface and a second surface, said first plate having formed therein;

a main flow channel formed in said first surface, said main flow channel having an upstream end, a downstream end, a top and a bottom;

a tributary channel having a first end and a second end;

a first inlet port in fluid connection with said upstream end of said main flow channel;

a first outlet port in fluid connection with said downstream end of said main flow channel;

a first tributary port in fluid connection with said second end of said tributary channel;

a first bridge channel having a first end and a second end, said second end of said first bridge channel in fluid connection with said first end of said first tributary channel, said first end of said first bridge channel in fluid connection with said main flow channel, joining along said bottom of said main flow channel, between said upstream end and said downstream end of said main flow channel; and

a second plate sealed to said first surface of said first plate.

76. (original) The device of claim 75 wherein said tributary channel is formed in said first surface of said first plate.

77. (original) The device of claim 76 wherein said tributary channel lies in said second surface of said first plate.

78. (original) The device of claim 75 wherein said bridge channel cuts through said first plate.

10/038,245 filed 10/24/2001

Parce, et al.

Reply to Office Action of September 15, 2004

79. (original) The device of claim 75 comprising a plurality of tributary channels and a plurality of bridge channels, each of said bridge channels in fluid connection with one of said tributary channels and with said bottom of said main flow channel.

80. (currently amended) The device of claim 75 wherein said main flow channel has a depth between about 100 micrometers and about 4-0.5 millimeter.

81. (currently amended) The device of claim 75 wherein said main flow channel has a depth between about 300 micrometers and about 800-500 micrometers.

82. (original) The device of claim 75 wherein said main flow channel has a width between about 20 micrometers and about 200 micrometers.

83. (original) The device of claim 75 wherein said main flow channel has a width between about 20 micrometers and about 80 micrometers.

84. (cancelled)

85. (original) The device of claim 75 wherein said first end of said bridge channel is in fluid connection with said bottom of said main flow channel across the entire depth.

86. (original) The device of claim 75 wherein said first end of said bridge channel is in fluid connection with said bottom of said main flow channel along only a portion of the depth.

87. (original) A device for introducing a second laminar fluid layer to, or removing a second laminar fluid layer from, a first laminar fluid layer, said device comprising:

a main flow channel, characterized by a width which is the distance between the channel top and channel bottom, and a depth which is the distance between

10/038,245 filed 10/24/2001

Parce, et al.

Reply to Office Action of September 15, 2004

the channel sides, said width being smaller than said depth, and said main flow channel having an upstream end and a downstream end;

a first inlet port in fluid connection with said upstream end of said main flow channel;

a first outlet port in fluid connection with said downstream end of said main flow channel;

a first tributary channel having a first end and a second end;

a first tributary port in fluid connection with said second end of said tributary channel; and

a first bridge channel having a first end and a second end, said second end of said first bridge channel in fluid connection with said first end of said first tributary channel, said first end of said first bridge channel in fluid connection with said bottom of said main flow channel between said upstream end of said main flow channel and said downstream end of said main flow channel.

88. (original) The device of claim 87 wherein said device comprises a first plate having formed therein said main flow channel and said tributary channel.

89. (original) The device of claim 88 wherein said device further comprises a second plate sealed to said first plate.